AMENDMENTS TO THE CLAIMS

The listing below of the claims will replace all prior versions and listings of claims in the present application:

Listing of Claims:

Claims 1 through 70 (canceled)

Claim 71 (currently amended): ~~Method~~ A method for controlling a shift mechanism of a ~~transmission system, especially~~ an ~~automatic~~ automated transmission of a motor vehicle, which ~~comprises~~ wherein the shift mechanism includes a selection motor and a shift motor for controlling a selector fork finger that is movably mounted in a selection-shift-passageway device layout, for the automated detecting of predetermined geometric values of the transmission system ~~and/or~~ and the shift mechanism via, said method comprising the following steps:

- ~~displacement of~~ displacing the selector ~~fork~~ finger in ~~the orientations~~ one of ~~the~~ a shift direction ~~and/or the~~ and a selection direction for ~~the purpose of~~ detecting ~~the~~ selector finger travel passageways in ~~the~~ at least one of a selection direction ~~and/or~~ and a shift direction ~~, which is possible even~~ from a ~~specific~~ first position ~~that is~~ having unknown ~~in terms of its~~ coordinates within the selection-shift-passageway device;
- ~~evaluation of the~~ evaluating detected travel passageways in accordance with a predetermined characteristic value;

- ~~approach of~~ approaching a new position within the selection-shift-passageway ~~device~~ layout based upon the results of ~~this~~ the travel passageway evaluation;
- ~~displacement of~~ displacing the selector ~~fork~~ finger in ~~the orientations~~ one of the selection direction ~~and/or in the orientations of~~ and the shift direction for ~~the purpose of~~ determining ~~the~~ maximum travel ~~passageways~~ paths that are possible starting from the newly approached position;
- ~~evaluation of~~ evaluating the travel passageways in accordance with an additional predetermined characteristic value;
- ~~approach of~~ approaching a second new position based upon the results of the additional evaluation; and
- ~~repetition of~~ repeating the ~~sequences: determination~~ steps of determining the maximum travel ~~passageway~~ paths, ~~evaluation of~~ evaluating those maximum travel ~~passageways~~ paths, and ~~approach of~~ approaching a new position for ~~the purpose of~~ determining the maximum travel ~~passageway given~~ path in ~~this~~ each position, until the predetermined geometric ~~transmission~~ values of the transmission have been completely detected.

Claims 72 through 124 (canceled)

Claim 125 (new): A transmission system with a shift mechanism for its actuation, said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting the selector finger movement in a selection direction and in a shift direction;

at least one selector shaft; and

at least one device for establishing a neutral position of the transmission and that controls the selector finger such that the selector finger is moved along a path in a selection passageway that is substantially parallel to the selection passageway axis while incrementally approaching one of the longitudinal walls of the selection passageway, until the selector finger is deflected by the longitudinal wall that is parallel to the selection passageway axis, so that a boundary positioned longitudinally in the selection passageway is detected for a neutral transmission position.

Claim 126 (new): A transmission system in accordance with claim 125, including at least one absolute position-detecting device that starting from an unknown position of the selector finger within the selection-shift-passageway layout, establishes at least one predetermined absolute position of the selector finger within the selection-shift-passageway layout.

Claim 127 (new): A transmission system accordance with claim 126, wherein the absolute position detecting device determines an absolute position of the selector finger, independently of actuating forces acting on the shift mechanism.

Claim 128 (new): A transmission system accordance with claim 126, including at least one sensor device and at least one signal region, wherein the sensor device detects a signal from the signal region, wherein the signal detected by the sensor device can have at least two different signal values depending upon the position of the signal region being sensed; wherein the signal region corresponds with a pattern that is projected onto the selection-shift-passageway layout and that includes a plurality of field-shaped regions, each of

which is associated with a predetermined signal value; and wherein a signal course detected by the sensor device changes when the selector finger passes over a contact line defined by adjacent bordering regions.

Claim 129 (new): A transmission system accordance with claim 128, wherein the signal region is positioned on the selector shaft.

Claim 130 (new): A transmission system accordance with claim 128, wherein the sensor device is a digital sensor and the signal is a digital signal field.

Claim 131 (new): A transmission system accordance with claim 128, wherein each of the field-shaped regions of the pattern is projected onto the selection-shift-passageway layout and is aligned substantially parallel to at least one of the axes of the passageways.

Claim 132 (new): A transmission system accordance with claim 131, wherein the pattern projected onto the selection-shift-passageway layout is configured so that an absolute position of one of the selector finger and a shaft of the actuation device can be determined within up to three movements of the selector finger.

Claim 133 (new): A transmission system in accordance with claim 131, wherein within at least one of the passageways two regions of the pattern projected onto the selection-shift-passageway layout have different signal values associated therewith so that with a movement of the selector finger to and beyond its bordering contact line an absolute selection position can be determined.

Claim 134 (new): A transmission system in accordance with claim 133, wherein within at least one of the passageways two of the regions of the pattern

projected onto the selection-shift-passageway layout are associated with different signal values and are arranged such that with a movement of the selector finger near a region-bordering contact line an absolute shift position can be determined.

Claim 135 (new): A transmission system in accordance with claim 128, wherein the at least one sensor device is selected from the group consisting of electromechanical calipers, Hall effect sensors, inductive sensors, optical sensors, capacitive sensors, sound sensor systems, and electric collectors based upon a collecting bar.

Claim 136 (new): A transmission system in accordance with claim 128, wherein the signal region is arranged on the selector shaft in the form of surface elevations and surface recesses.

Claim 137 (new): A transmission system in accordance with claim 128, including at least one evaluation device, which stores the position of the pattern projected onto the selection-shift-passageway layout, and which based on the position of this stored pattern and on the detected sensor values determines an absolute position in one of the selection direction and the shift direction.

Claim 138 (new): A transmission system in accordance with claim 125, including at least one incremental distance sensor for the selection direction and at least one incremental distance sensor for the shift direction and which can be set at a predetermined time to a predetermined value, wherein a predetermined value from the incremental distance sensor can be allocated to an absolute position.

Claim 139 (new): A transmission system in accordance with claim 128, wherein in at least one shift passageway in at least one predetermined position in the selection direction, two regions of the pattern that is projected onto the selection-shift-passageway layout and to which different signal values are

allocated meet one another along a contact line that is aligned at least in part along the longitudinal axis of the at least one shift passageway.

Claim 140 (new): A transmission system in accordance with claim 128, wherein in at least one of the shift passageways in at least one predetermined position in the shift direction, two regions of the pattern that is projected onto the selection-shift-passageway layout and to which different signal values are allocated, meet one another along a contact line that is aligned at least in part in a transverse direction of the at least one shift passageway.

Claim 141 (new): A transmission system in accordance with claim 128, wherein in the selection passageway, in at least one predetermined position in the shift direction two regions of the pattern that is projected onto the selection-shift-passageway layout and to which different signal values are allocated , meet one another along a contact line that is aligned at least in part along the longitudinal axis of the selection passageway.

Claim 142 (new): A transmission system in accordance with claim 128, wherein in the selection passageway in at least one predetermined position in the selection direction two regions of the pattern that is projected onto the selection-shift-passageway layout and to which different signal values are allocated, meet one another along a contact line that is aligned at least in part in a transverse direction of the selection passageway.

Claim 143 (new): A transmission system with a shift mechanism for its actuation said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved; at least one actuation device for controlling the selector finger;

at least one position sensor for detecting selector finger movement in a selection direction and in a shift direction;

at least one selector shaft; and

at least one sensor device with at least three stages and which interacts with a component that is moved during a shift process so that at least three different positions of each of the selector shaft and the selector finger can be differentiated within the selection-shift-passageway layout.

Claim 144 (new): A transmission system in accordance with claim 143, wherein a profile is incorporated on a surface of the selector shaft and which is designed for the identification of predetermined shifting positions such that recesses of various depths extend from the surface toward an interior part of the shaft wherein the recesses are detected by the sensor device in at least three stages.

Claim 145 (new): A transmission system in accordance with claim 144, wherein a first recess with a first depth for identification of a neutral position, and a second recess with a second depth that differs from the first depth for identification of a reverse gear are arranged on the surface of the selector shaft, wherein the sensor device contains information relating to a first gear stage that corresponds with the first recess, a second gear stage that corresponds with the second recess, and a third gear stage that corresponds with the surface position positioned in an axial direction of the selector shaft between the recesses.

Claim 146 (new): A transmission system with a shift mechanism for its actuation, said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting selector finger movement in a selection direction and in a shift direction;

at least one selector shaft; and

at least one redundancy sensor device for checking the position sensor and differentiates predetermined transmission positions from other transmission

positions, wherein transmission positions "gear end position" and "neutral gear position" can be differentiated from other transmission positions.

Claim 147 (new): A transmission system with a shift mechanism for its actuation, said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting movement of the selector finger in a selection direction and in a shift direction;

at least one selector shaft having a profile is arranged on its outer surface and which contains regions having different spacings relative to the axis of the selector shaft, wherein predetermined gear end positions and a neutral position are allocated predetermined spacings;

a retainer including a spring-loaded ball oriented radially relative to the selector shaft and which under a spring effect rests against the profile of the selector shaft; and

at least one sensor carried by the retainer and which detects a predetermined ball movement for testing the functionality of the actuation device, of the position sensor, and of a selection motor and a shift motor.

Claim 148 (new): A transmission system in accordance with claim 147, wherein for each gear end position and for the neutral position predetermined spacing information on the selector shaft's surface profile is provided.

Claim 149 (new): A transmission system in accordance with claim 148, wherein the spacings of gear end positions and of the neutral position are identical.

Claim 150 (new): A transmission system in accordance with claim 147, wherein the sensor for detecting spacings on the selector shaft surface is a redundancy sensor, which can sense a position on the selector shaft surface.

Claim 151 (new): A transmission system in accordance with claim 150, wherein the redundancy sensor examines the functionality of a position sensor provided for detecting a position of the selector finger within the selection-shift-passageway layout, and a position of the selector shaft.

Claim 152 (new): A transmission system with a shift mechanism for its actuation, said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting selector finger movement in a selection direction and in a shift direction;

at least one selector shaft; and

at least one neutral reference device which starting from one unknown selector finger position determines a neutral gear position, wherein in establishing a neutral gear position based upon a shift pattern, controlled directions of movement of the selector finger are aligned such that a movement of the selector finger in predetermined critical shift passageways is prevented.

Claim 153 (new): A transmission system in accordance with claim 152, wherein forces that are applied to the selector finger by the neutral reference device include a direction of the selection passageway, and directions that contain a vector component in the direction of the selection passageway and a vector component in the direction of the shift passageways; wherein each of those components does not equal zero and directions and orientations are ruled out which correspond with the direction and orientation of an arbitrary vector that is directed at any random point in the predetermined, critical shift passageway

from any random point on the selection passageway that is located outside an intersecting region between the predetermined critical shift passageways and the selection passageway.

Claim 154 (new): A transmission system in accordance with claim 152, wherein the predetermined critical shift passageways include a shift passageway of a 1st gear and a shift passageway of a reverse gear.

Claim 155 (new): A transmission system in accordance with claim 152, wherein the predetermined critical shift passageways are arranged in a double-H shifting diagram diametrically opposite one another and positioned outwardly within the diagram.

Claim 156 (new): A transmission system in accordance with claim 152, wherein the neutral reference device begins to control the neutral gear position when one of detected actuation parameters contradict a detected gear when in the case of an engaged clutch, the detected gear does not coincide with a gear that has been calculated based upon engine rotational speed and vehicle speed; and unknown stops are detected in the transmission; and a position sensor is sensing erroneous signals; and during travel passageway position sensor information is not available; and predetermined components of the shift mechanism have been altered.

Claim 157 (new): A transmission system in accordance with claim 152, wherein the neutral reference device initiates a neutral reference movement only when it has been determined that a motor vehicle with a A transmission system has been found to be operating within predetermined operating conditions.

Claim 158 (new): A transmission system in accordance with claim 152, wherein the neutral reference device initiates a neutral reference movement only when a throttle valve of a motor vehicle assumes a predetermined angle.

Claim 159 (new): A transmission system in accordance with claim 152, wherein the neutral reference device prevents a gear from being engaged during a neutral reference movement.

Claim 160 (new): A transmission system in accordance with claim 152, wherein the neutral reference device initiates a neutral reference movement only when a vehicle speed is below a predetermined vehicle speed.

Claim 161 (new): A transmission system in accordance with claim 152, wherein during a neutral reference movement the neutral reference device performs tactile and pushing movements in accordance with a predetermined characteristic value, wherein a tactile movement corresponds with a movement of the selector finger that is continued until a predetermined condition is detected and wherein a pushing movement corresponds with a movement of the selector finger that is continued until a traversing movement relative to the movement direction is detected.

Claim 162 (new): A transmission system in accordance with claim 152, wherein under predetermined error conditions a neutral reference movement is interrupted.

Claim 163 (new): A transmission system in accordance with claim 152, wherein the neutral reference device detects a selector finger position in the shift direction after locating a selection passageway in accordance with a predetermined characteristic value.

Claim 164 (new): A transmission system with a shift mechanism for its actuation, said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting selector finger movement in a selection direction and in a shift direction;

at least one selector shaft; and

at least one geometry detection device that presses, pushes, and finally releases the selector finger under predetermined conditions relative to a predetermined stop so that the selector finger is in a substantially force-free position, and based upon that position and in accordance with a predetermined characteristic value a predetermined parameter of the transmission geometry can be determined.

Claim 165 (new): A transmission system in accordance with claim 164, wherein the geometry detection device establishes at least one neutral gear position under predetermined conditions, wherein for the determination of a neutral gear position the selector finger is moved to a respective shift passageway end and is then pushed against the passageway end until an outside force applied to the selector finger is reduced, whereby resulting restoring forces cause the selector finger to be moved into a force-free position that in accordance with a predetermined characteristic value includes a predetermined position relative to the neutral gear position.

Claim 166 (new): A transmission system in accordance with claim 164, wherein the geometry detection device presses and pushes the selector finger against a predetermined wall of the passageway layout and then releases it, so that at least one geometric characteristic of the selection-shift-passageway layout selected from the group consisting of a passageway wall position and a passageway width can be determined based upon the position of the selector finger after it has been released.

Claim 167 (new): A transmission system in accordance with claim 164, wherein the geometry detection device responds to a signal from a passageway sensor by controlling the selector finger in accordance with a predetermined characteristic value, wherein the geometry detection device presses and pushes the selector finger at a predetermined position against a predetermined stop before releasing it, whereby resulting restoring forces cause the selector finger to assume a substantially force-free position that is used in initiating the incremental passageway sensor device.

Claim 168 (new): A transmission system with a shift mechanism for its actuation, said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved, wherein if a gear is completely engaged the selector finger is arranged within a predetermined shift passageway in a region that is allocated to that gear;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting selector finger position in a selection direction and in a shift direction;

at least one selector shaft; and

at least one gear coding device that encodes each engaged gear so that the identity of an engaged gear can be determined independently from an end value of the position sensor that is active when the gear is engaged by the selector finger movement.

Claim 169 (new): A transmission system in accordance with claim 168, wherein the identity of the engaged gear is determined when the selector finger remains in a gear end position.

Claim 170 (new): A transmission system in accordance with claim 169, wherein the identity of the engaged gear is determined by displacing the selector finger at the gear end position.

Claim 171 (new): A transmission system in accordance with claim 169, wherein the identity of the engaged gear is determined based upon predetermined geometric characteristic values of a shift gate of the transmission while the selector finger remains in its gear end position.

Claim 172 (new): A transmission system in accordance with claim 169, wherein each gear end position is bounded by at least two passageway walls.

Claim 173 (new): A transmission system in accordance with claim 169, wherein while a gear is being engaged the gear coding device positions the selector finger within a clearance region of the gear end position in a predetermined orientation that characterizes the engaged gear to determine gear identity by establishing the relative position of the selector finger to at least one predetermined point at a boundary defining the gear end position and independent of a final value of the position sensor.

Claim 174 (new): A transmission system in accordance with claim 173, wherein the system includes a characteristic allocation value that correlates the identities of predetermined gears with predetermined positions within the gear end positions.

Claim 175 (new): A transmission system in accordance with claim 168, wherein the gear coding device measures a distance from the selector finger to at least one wall defining the gear end position.

Claim 176 (new): A transmission system in accordance with claim 168, wherein at least two shift passageways have different passageway widths in the regions of their gear end positions.

Claim 177 (new): A transmission system in accordance with claim 169, wherein for coding the identity of at least one gear, the selector finger rests within the plane of the selection-shift-passageway layout at one of a top and left position, a top and right position, a bottom and left position, a bottom and right position, and a top position, and at a predetermined distance to left and right boundaries of the gear end position.

Claim 178 (new): A transmission system in accordance with claim 168, wherein the gear-coding device decodes coded gear identities based upon geometric values for the selection-shift-passageway layout.

Claim 179 (new): A transmission system in accordance with claim 168, wherein a gear identity encoded by the gear coding device represents a redundancy for gear identity information that is generated by the position sensor that senses selector finger movement when the gear is engaged.

Claim 180 (new): A transmission system with a shift mechanism for its actuation, said system comprising:

a selection-shift-passageway layout within which a selector finger can be moved and wherein clearance is provided between the selector finger and walls defining a shift passageway in a selection direction of the shift passageway;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting selector finger movement in a selection direction and in a shift direction;

at least one selector shaft; and

at least one monitoring device for monitoring selector finger movement when a gear is being engaged or disengaged, so that when the selector finger position within the shift passageway is changed in the selection direction, by comparing the path of the selector finger movement with position sensor values functioning of the position sensor can be monitored.

Claim 181 (new): A transmission system with a shift mechanism for its actuation, said system comprising;

a selection-shift-passageway layout within which a selector finger can be moved;

at least one actuation device for controlling the selector finger;

at least one position sensor for detecting selector finger movement in a selection direction and in a shift direction;

at least one selector shaft; and

at least one gear plausibility examination device that determines whether a gear is engaged and which gear is engaged, wherein the gear plausibility examination device makes the gear engagement determination independently of elasticity of components located in a transmission passageway between a position sensor that is arranged on the actuation device and a shift fork.

Claim 182 (new): A transmission system in accordance with claim 181, wherein the gear plausibility examination device recognizes a gear when an actual position of the selector finger deviates less than a predetermined limit from an allocated target position of the gear, and when the selector finger reaches the target position within a specified period of time remains in a switched-off hysteresis for at least a specified period of time.

Claim 183 (new): A transmission system in accordance with claim 182, wherein a predetermined passageway width boundary corresponds to an individual passageway.

Claim 184 (new): A transmission system in accordance with claim 181, wherein the gear plausibility examination device recognizes a gear as engaged if a position of the selector finger that is detected by the position sensor in accordance with predetermined allocation characteristics corresponds with the position of the engaged gear, and if the ratio of the transmission input shaft speed and the transmission output shaft speed corresponds to the gear ratio of the engaged gear.

Claim 185 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout and for examining a neutral position of the transmission system and for establishing predetermined wall positions of a selection passageway, said method comprising the following steps:

moving the selector finger within the selection passageway in a selection direction along a first, predetermined length in a first, predetermined orientation;

moving the selector finger in a shift direction by at least one increment in a second, predetermined orientation when the selector finger is not deflected by resistance in the shift direction during movement in the selection direction;

moving the selector finger in the selection direction in a third direction with a third orientation over a third, predetermined distance;

moving the selector finger in a fourth direction with a fourth orientation, by at least one increment when the selector finger is not deflected in the shift direction during movement in the selection direction; and

repeating the above steps until during a movement of the selector finger in the selection direction continued movement in the selection direction is resisted

before the selector finger has traversed the predetermined travel distance in the selection direction.

Claim 186 (new): A method in accordance with claim 185, wherein the second direction and the fourth direction, and the second orientation and the fourth orientation, are identical.

Claim 187 (new): A method in accordance with claim 185, wherein the first direction corresponds to the third direction, and the first orientation is opposite the third orientation.

Claim 188 (new): A method in accordance with claim 185, wherein the predetermined distance in the selection direction corresponds substantially with the length of the selection passageway, at the latest following the second movement step, in which the selector finger is moved in the selection direction.

Claim 189 (new): A method in accordance with claim 185, including the step of determining that a first boundary of the neutral position has been reached when during a control process that allows movement in the selection direction, the selector finger is deflected by resistance in the shift direction before reaching the predetermined distance of travel in the selection direction.

Claim 190 (new): A method in accordance with claim 185, including the following steps:

detecting a first boundary for the neutral position that extends along the longitudinal axis of the selection passageway, with that position arranged in a fifth position in the shift direction, relative to the center of the neutral passageway; and

detecting a second boundary for the neutral position that extends along the longitudinal axis of the selection passageway, with that position arranged in a

sixth position in the shift direction, relative to the center of the neutral passageway.

Claim 191 (new): A method in accordance with claim 190, including the step of approaching a position within the selection passageway in the shift direction that the selector finger reached when the first limit of the neutral position was first detected, and after the first limit of the neutral position was detected.

Claim 192 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout, for the purpose of detecting and controlling an absolute selector finger position within the selection-shift-passageway layout, wherein the movement of the selector finger in the shift direction and the movement of the selector finger in the selection direction are both detected at least part of the time by a passageway sensor, said method comprising the following steps:

performing an absolute alignment at predetermined times, wherein the absolute alignment produces a position of the selector finger within the selection-shift-passageway layout whose location within the selection-shift-passageway layout is known;

during the absolute alignment process and in accordance with a predetermined transformation, a selector shaft movement is executed that is based upon the movement of the selector finger;

scanning with a digital sensor a digital field that corresponds to a field that is transformed in the selection-shift-passageway layout, and which is moved with the selector shaft under predetermined conditions; and

approaching a predetermined point among a plurality of predetermined points within the selection-shift-passageway layout based upon a digital change detected by the digital sensor and orientations of the travel directions of the selector fingers that occur during the digital change, in accordance with a predetermined characteristic value.

Claim 193 (new): A method in accordance with claim 192, wherein upon reaching the predetermined point, each passageway sensor is set to a predetermined value that has been allocated to that point in accordance with a characteristic allocation value.

Claim 194 (new): A method in accordance with claim 192, wherein a point for determining an absolute position in the selection direction and a point for determining an absolute position in the shift direction are approached separately.

Claim 195 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout, for determining and engaging the neutral gear position of the transmission system, said method comprising the following steps:

implementing a neutral reference movement including a sequence of motor actuations and selector finger actuations that are specified in accordance with a predetermined neutral reference movement characteristic, whereby the selector finger can be moved into a neutral position that corresponds with the neutral gear, independently of the starting position of the selector finger;

carrying out a predetermined sequence of tactile processes and pushing processes, wherein a tactile process includes supplying current to a motor until it is determined that the selector finger has hit a stop and/or a predetermined distance has been traveled, and wherein a pushing process includes supplying current to a motor until it is determined that the selector finger has moved in a direction of travel specified by the motor to determine a neutral reference movement characteristic value;

wherein the tactile processes, the selection processes, and the combinations of tactile and selection processes are implemented only in predetermined directions based upon critical gears within the selection-shift-passageway layout that are predetermined based upon location.

Claim 196 (new): A method in accordance with claim 195, wherein a tactile process in the shift direction is implemented only in conjunction with a pushing process in the selection direction.

Claim 197 (new): A method in accordance with claim 195, wherein a predetermined condition for initiating a neutral reference movement exists when

during travel it is determined that with an engaged clutch the engine rotational speed and the vehicle speed do not coincide with that for a gear that is recognized as being engaged; and

it is determined that the controlled positions are not being approached correctly; and

it is determined that in accordance with a predetermined characteristic value passageways of movement for the selector finger that are allocated to a predetermined position and are stored do not coincide with the actual passageway movements; and

a control device for controlling one of the shift motor, the selection motor, and the selector finger has been switched off or reset; and

components of the transmission system have been newly installed and/or replaced.

Claim 198 (new): A method in accordance with claim 195, wherein a neutral reference movement is executed only when, in accordance with a predetermined characteristic value, and based upon at least one predetermined operating parameter for a motor vehicle, it has been ensured that neutral reference movement will not cause damage to the transmission system and that the motor vehicle is not in a predetermined operating mode that would have to be interrupted in order to execute the neutral reference movement.

Claim 199 (new): A method in accordance with claim 195, wherein a neutral reference movement is interrupted when a condition exists within the

group consisting of vehicle speed exceeding a predetermined vehicle speed, a kick-down operation exists, and the throttle valve angle is within a predetermined range.

Claim 200 (new): A method in accordance with claim 195, wherein during a neutral reference movement one gear that is not equal to zero is prevented from shifting into another gear that is not equal to zero.

Claim 201 (new): A method in accordance with claim 195, wherein the selection-shift-passageway layout is a double-H shift pattern in which a shift passageway that is allocated to the first gear is positioned on the top left of the pattern and the shift passageway that is allocated to the reverse gear is positioned on the bottom right of the pattern, and wherein during a neutral reference movement only tactile and pushing processes are performed in directions that include a direction oriented toward the left, a direction oriented toward the right, an overlap of a direction that is oriented downward by a direction that is oriented toward the left, and an overlap of a direction that is oriented upward by a direction oriented toward the right.

Claim 202 (new): A method in accordance with claim 201, including the following steps: initiating a neutral reference movement under predetermined conditions;

determining the passageways of movement in the selection direction by tactile processes in both orientations in the selection direction;

determining that the neutral gear is engaged when the passageway of movement in the selection direction is greater than a predetermined value, and establishing that the selector finger is at the end of the selection passageway in whose direction the last tactile process occurred;

conducting a tactile process in the forward shifting direction (F-tactile) with simultaneous pushing in the right selection direction (R-pushing) when the

passageway of movement is smaller than a predetermined passageway of movement;

conducting right-left-right tactile process (RLR-tactile) for purposes of control in the selection direction if no stop is detected, and if a pushing to the right is successful so that movement to the right is detected;

establishing that a right end of the neutral gear is engaged when the passageway of movement in the selection direction that has been established within the framework of the RLR tactile process is greater than a predetermined value;

conducting a rear tactile process (R-tactile) with simultaneous left pushing (L-pushing) when the movement in the shift direction that has been established in the RLR tactile process is below a predetermined value, or when a stop is detected during a F-tactile process with simultaneous R-pushing;

conducting a LR-tactile process when during an R-tactile process with simultaneous L-pushing, no stop is detected, and if a pushing to the left is successful, so that a movement to the left can be detected;

establishing that the right end of the neutral gear is engaged when the LR control tactile process has produced a movement that is greater than a predetermined movement;

wherein

a LR tactile process is a combination of a tactile process to the left followed by a tactile process to the right, a F-tactile process is a forward tactile process, a R-tactile process is a backward tactile process, a RLR tactile process is a combination of a tactile process to the right, followed by a tactile process to the left, and then a tactile process to the right, R-pushing is a pushing to the right, and L-pushing is a pushing to the left;

left and right represent orientations in the selection direction;

front and rear represent orientations in the shift direction; and

the shift passageway of the first gear and the shift passageway of the reverse gear are positioned on the outside in the selection-shift-passageway layout, to one of the left front and the right rear.

Claim 203 (new): A method in accordance with claim 195, including the step of repeating a reference movement in accordance with a predetermined characteristic value when predetermined errors are detected during the reference movement.

Claim 204 (new): A method in accordance with claim 195, including the following steps:

approaching an end position in the selection direction;

approaching a predetermined position in the direction of the selection passageway after locating the selection passageway, wherein in accordance with a predetermined characteristic value it has been determined that within the region of that position no shift passageway joins the selection passageway; and

moving in the shift direction to establish the stops on the selection passageway in the shift direction for establishing the neutral position in the shift direction.

Claim 205 (new): A method in accordance with claim 204, including the step of monitoring the selection position during movement in the shift direction, so that the selector finger is not moved into a shift passageway as a result of slippage.

Claim 206 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout, for establishing at least one predetermined neutral position and for detecting a malfunction of a shift motor and of a selection motor and of a position sensor associated with the shift motor or the selection motor, said method comprising the following steps:

moving the selector finger in the direction of at least one wall of a passageway;

pushing the selector finger against a stop position defined by the passageway wall;

reducing to zero the force applied to the selector finger by at least one motor, thereby causing the selector finger to be moved back in the direction of the passageway as a result of restoring forces of one of the selector finger and the shift fork, whereby the respective element, such as the selector finger, is then released from stress, and assumes a position within the passageway configuration, relative to the stop, that is predetermined;

detecting a reverse movement of the selector finger from its pushed position back to its unstressed position by a position sensor, especially by a position sensor that is arranged on a motor;

comparing the predetermined position with the final value of the position sensor; and

establishing that one of the selection motor, the shift motor, a position sensor of the selection motor, and a position sensor of the shift motor exhibits a malfunction when a final value of the position sensor deviates more than a predetermined amount from the predetermined unstressed position of the selector finger.

Claim 207 (new): A method in accordance with claim 206, wherein a stop is defined by a shift passageway wall that borders the neutral position.

Claim 208 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout, for detecting at least one neutral position, said method comprising the following steps:

moving the selector finger in the direction of a final stop within a shift passageway in accordance with a predetermined movement characteristic;

pushing the selector finger against the stop in accordance with a predetermined control characteristic;

reducing to zero the force with which the selector finger is controlled, in accordance with a predetermined characteristic value, so that the selector finger is pushed back within the shift passageway in the shift direction as a result of restoring forces of one of the selector finger and of a shift fork, and assumes a position in which it is substantially without stress; and

establishing the location of the neutral position of the engaged gear relative to that position, in accordance with a predetermined characteristic allocation value in one of the selection direction and the shift direction.

Claim 209 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout, for determining the width of a predetermined passageway in a selection-shift-passageway layout, said method comprising the following steps:

controlling the selector finger in the direction of a longitudinal wall of a predetermined passageway, in accordance with a predetermined control characteristic;

pushing the selector finger against the wall in accordance with the predetermined characteristic value;

unloading the selector finger in accordance with a predetermined characteristic value, so that the selector finger is moved back in the direction of the passageway width as a result of restoring forces of one of the selector finger and a shift fork, whereby the selector finger comes to rest in a largely unstressed mode in a first predetermined position in the width direction of the passageway;

repeating the above steps in relation to a second wall of the passageway located on an opposite side of the passageway centerline; and

determining the width of the passageway in accordance with a predetermined characteristic value, based upon the distance between unstressed selector finger positions.

Claim 210 (new): A method in accordance with claim 209, wherein the passageway wall is detected by an indirect method by the detection of a standstill position of a motor based upon one of its position sensor, a force measurement, a measurement of armature current of a motor, and the time progression of predetermined operating parameters in comparison with a predetermined evaluation characteristic.

Claim 211 (new): A method in accordance with claim 209, including the step of adapting predetermined stored positions of the selection-shift-passageway layout, based upon at least one detected unstressed selector finger position.

Claim 212 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout with a clearance for the selector finger within the shift passageways in the selection direction for providing and determining the identity of a gear that is engaged in a transmission system, said method comprising the following steps:

encoding the identity of an engaged gear when that gear is being engaged and in accordance with a predetermined characteristic value by moving the selector finger in a predetermined position range within the clearance range of the engaged gear end point, wherein to that position range within the clearance region is allocated the identity of the engaged gear in accordance with a predetermined characteristic allocation value; and

decoding the gear identity information at predetermined intervals;

wherein the decoding process is independent of the final value of a position sensor that follows the movement of the selector finger while the gear is being engaged, and wherein the final value is allocated the position of the selector finger within the selection-shift-passageway layout that the selector

finger reached before starting the decoding process; and wherein the engaged gear is maintained during the decoding process.

Claim 213 (new): A method in accordance with claim 212, wherein for decoding the gear identity the selector finger is controlled in the direction of one of the shift passageways and the selection passageway within the gear end points, wherein, using at least one characteristic geometric value, especially at least one characteristic geometric value of a shift gate of the transmission, and using at least one travel distance within the gear end in the shift direction and in the selection direction, the engaged gear is determined in accordance with a predetermined characteristic.

Claim 214 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout, with a clearance between the selector finger within the shift passageways in the selection direction, for detecting a malfunction of a selection motor or a position sensor associated with the selection motor, said method comprising the following steps:

controlling a movement of the selector finger in the selection direction within a shift passageway under predetermined conditions and in accordance with a predetermined characteristic value;

detecting a path change in the selection direction that is generated by the position sensor during the controlled movement in the selection direction;

comparing the path change in the selection direction produced by the position sensor with a path change in the selection direction specified in accordance with the predetermined characteristic value; and

establishing that one of the position sensor of the selection motor and the selection motor is experiencing functional impairment when the comparison shows a passageway deviation that is greater than a predetermined passageway deviation.

Claim 215 (new): A method in accordance with claim 214, wherein the method is performed when a gear is being disengaged.

Claim 216 (new): A method for controlling a shift mechanism of a transmission system that includes a selection motor and a shift motor for controlling a selector finger that is movably mounted in a selection-shift-passageway layout, for checking information about an engaged gear, said method comprising the following steps:

determining a deviation between a target value and an actual value of the selector finger position, wherein the deviation is between a target position that is allocated to a predetermined gear by a gear characteristic position allocation value, and actual positions of the selector finger detected by position sensors; and

monitoring selection motor current;

wherein the gear identity produced by the characteristic position allocation value is selected as the actually existing gear identity when

the deviation between the target value and the actual value is below a predetermined limit, and when one of a target position in the selection direction is reached within a predetermined first period of time and the selection motor remains in a switch-off hysteresis mode for at least a predetermined period of time once the target position is reached.

Claim 217 (new): A method in accordance with claim 216, wherein a predetermined boundary corresponds substantially with the width of a shift passageway that is allocated to the gear that is engaged in accordance with the predetermined gear position characteristic allocation value.

AMENDMENTS TO THE DRAWINGS

The clean sheets of formal drawings appended hereto include changes to Figures 1, 4, 5, and 11 of the drawings forming part of the originally-filed parent application. The changes included in those drawings involve the correction and addition of reference numerals, and the translation of foreign-language terms into English. The changes are those that had been approved by the examiner in the parent U.S. application.

Also appended hereto are marked-up copies of the drawing figures that were corrected, showing in red the changes to the originally-filed parent application drawings.

Acceptance and entry of the attached corrected formal drawings and their substitution for the corresponding sheets of the drawings of the originally-filed parent application is respectfully requested.